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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,072	06/05/2000	Ahmed Saifuddin	QCPA000320	8110

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Qualcomm Incorporated  
Patents Department  
5775 Morehouse Drive  
San Diego, CA 92121-1714

EXAMINER

TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/588,072

Applicant(s)

SAIFUDDIN ET AL.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 4 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because the drawings need to be centered with sufficiently large margins so that when holes are punched at the top they do not delete parts of the drawings. The drawings are objected to because the handwriting in the drawings is difficult to read.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. New corrected drawings are required in this application because the drawings need to be centered with sufficiently large margins so that when holes are punched at the top they do not delete parts of the drawings. The drawings are objected to because the handwriting in the drawings is difficult to read and in places non-legible.

Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

'310' in Figure 3; '22' in Figure 2. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

4. Claim 4 is objected to because of the following informalities: "lest" in line 9 is not a word. Appropriate correction is required.
5. Claim 8 is objected to because of the following informalities: "lest" in line 10 is not a word. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the processor" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Wright, David A. (US 6445702 B1).

8. Wright anticipates claim 1.

Wright teaches a method for forming a frame of data (see Fixed Size Frame 76 in Figure 4 and Abstract, Wright), comprising: determining an outer quality metric (an outer code, see First Encoder 66 in Figure 4 and Abstract, Wright) in accordance with a plurality of information bits (see Set of Data Cells 64 in Figure 4 and Abstract, Wright); determining at least one inner quality metric (an inner code, see First Encoder 66 in Figure 4 and Abstract, Wright) in accordance with a group of information bits (see Set of

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Data Cells 64 in Figure 4 and Abstract, Wright); and forming the frame comprising at least the plurality of information bits, the outer quality metric, and the at least one inner quality metric (see Fixed Size Frame 76 in Figure 4 and Abstract, Wright).

9. Wright anticipates claim 2.

Wright teaches determining at least one inner quality metric comprises: determining a number of groups of information bits to be recovered ( $k(i_l)$  or  $k(i_h)$ ), the number of outer encoded codewords or groups of information bits, determine the number of information bits that are to be recovered and vary with the coding rate for the inner encoder, see col. 3, lines 59-67, Wright), each of the groups having an inner quality metric associated therewith (each of the groups of  $k(i_l)$  or  $k(i_h)$  codewords have an inner code word associated with them after they undergo inner encoding, see col. 3, lines 59-67, Wright); and determining each of the inner quality metrics in accordance with the associated group of information bits (see col. 3, lines 59-67, Wright).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 3, 4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue, Tohru et al. (US 5712861 A, hereafter referred to as Inoue) in view of Wright, David A. (US 6445702 B1).

11. 35 U.S.C. 103(a) rejection of claim 3.

Inoue teaches a method for recovering at least one group of information bits in a received block of data (see Abstract, Inoue), comprising: recovering the at least one group of information bits when an outer quality metric indicates that the block has been received correctly (Inoue teaches when outer  $C_2$  codewords are decoded and the outer  $C_2$  metric indicates the block has been received correctly, the information bits are retrieved, col. 30, lines 18-23, Inoue); and recovering the at least one group of information bits when an inner quality metric corresponding to the at least one group of information bits indicates that the at least one group of information bits in the block has been received correctly (when the flag value  $F_d = 0$ , the inner  $C_1$  decoder indicates that the codewords have been received correctly, col. 14, lines 40-43 and ST1-ST3 in Figure

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4, Inoue) when the block has not been received correctly (in step ST4 of Figure 4 the decoding process continues with outer  $C_2$  decoding even if the inner  $C_1$  decoder indicates that the codewords have been received correctly in steps ST1-ST3 in Figure 4; see col. 14, lines 48-55, Inoue).

However Inoue does not explicitly teach the specific use of a frame.

Wright, in an analogous art, teaches the specific use of frames (see 76 in Figure 4, Wright). In fact, from Figure 3 in Wright and Figure 1 in Inoue, it is clear that the frames in Wright are in substantially the same format as the blocks in Inoue. Furthermore, the blocks in Inoue are designed for transmission over a digital communication channel which generally requires packetizing data into frames for transmission over a communications channel, so that one of ordinary skill in the art at the time the invention was made would be highly motivated to use frames to transmit the blocks of data in Inoue. Wright on the other hand teaches a product code with inner and outer "metrics" packetized into frames for transmission. One of ordinary skill in the art at the time the invention was made would be highly motivated to include a decoder at the receiving end in order to decode the product code with inner and outer "metrics".

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Inoue with the teachings of Wright by including use of frames. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of frames would provide the ability to transmit data over a communications channel.



12. Inoue and Wright teach the additional limitations of claim 4.

Inoue teaches determining a number of the inner quality metrics (inner  $C_1$  syndromes  $S_p$  for each inner  $C_1$  codeword, col. 14, lines 40-43, Inoue); determining, for each of the number of the inner quality metrics, whether a group of information bits corresponding to the inner quality metric has been received correctly (see col. 14, lines 40-43 and ST1-ST3 in Figure 4, Inoue); and recovering the at least one group of information bits, which were determined to be received correctly (col. 15, lines 13-15, Inoue).

13. Inoue and Wright teach the additional limitations of claim 7.

See Rejection to claim 3, above. In addition, Inoue teaches various processors with storage units coupled to the processors for decoding (see Figures 17, 26, 28, 29, 37, 38 and 40).

14. Inoue and Wright teach the additional limitations of claim 8.

See rejection to claim 4, above.

15. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright, David A. (US 6445702 B1).

16. 35 U.S.C. 103(a) rejection of claim 5.

Wright substantially teaches the claimed invention described in claims 1 and 2 (as rejected above).

However Wright does not explicitly teach the specific use of a processor with a storage medium coupled to the processor.

The Examiner would like to point out that Wright teaches a processing satellite for determining a coding rate for a first set of data cells, said coding rate associated with a first code; applying a second code to said set of data cells to form a group of coded blocks, such that the number of coded blocks are based on said coding rate; formatting an interleaver area with said group of coded blocks; and applying said first code to said group of coded blocks using said coding rate, thereby forming a fixed size frame. The Examiner would like to point out that processing units generally require various storage units to hold data during different stages of processing, hence use of a processor with a storage medium coupled to the processor to implement the method taught in the Wright patent does not deviate from the scope or the intent of the teachings in Wright.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wright by including the additional use of a processor with a storage medium coupled to the processor. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a processor with a storage medium coupled to the processor would provide the opportunity to implement the method for encoding the product code taught in the Wright.

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17. Wright teaches the additional limitations of claim 6.

See rejection to claim 2, above.

### ***Conclusion***

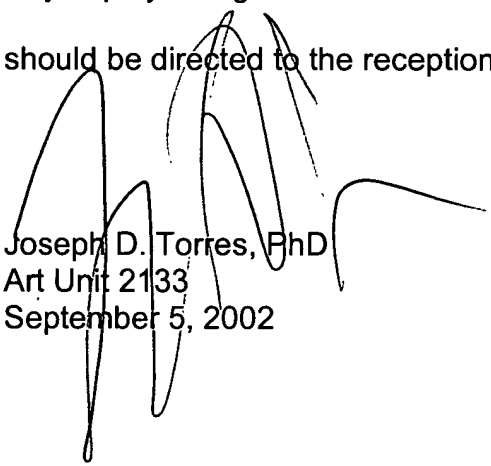
18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Howe, Dennis George et al. (US 6112324 A) teaches a product code of C1 and C2 CIRC subcodes interleaved to mitigate the effects of handling. Tanaka, Shin-ichi et al. (US 6397366 B1) teaches a read-out controller to transmit information data and a parity so that each data component of the information data obtained by dividing the information data of one data block area into a plurality of data components and each parity component of the parity obtained by dividing the parity of one block area into a plurality of parity components are transmitted. Pehkonen, Kari et al. (US 5949790 A) teaches forward error correction coders for outer coding for at least some of the signals to be transmitted so that all the signals to be transmitted have a common quality level and a forward error correction coder for carrying out inner coding for the frames to be transmitted. Kim, Tae-eung (US 5627935 A) teaches outer error-correction coding in two-dimensional Reed-Solomon coding. Ohtaka, Hideki et al. (US 5392129 A) teaches a signal processing apparatus including an inner and outer correction circuit for correcting errors in the sync blocks. Kobayashi, Hisashi et al. (US 6029264 A) teaches a concatenation of an outer coder, a permutation and an inner coder. Inoue, Hajime et al. (US 5504759 A) teaches an error processor comprising an error corrector, which is responsive to error detection/correction data. Havemose, Allan

(US 5412667 A) teaches a cross-interleaved Reed Solomon (CIRS) code. Ozaki, Shinya et al. (US 4719628 A) teaches error correction codes encoded for each row and column on a two-dimensional arrangement.

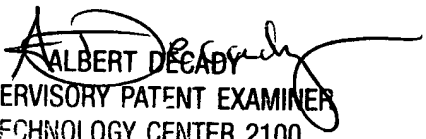
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-746-7240.



Joseph D. Torres, PhD  
Art Unit 2133  
September 5, 2002



ALBERT DECADY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100